

CLAIMS

1. An electrode for a fuel cell comprising a porous thermoplastic resin having gas permeability, and a metal (3b) supported in a three-dimensional matrix form on the thermoplastic resin.
2. An electrode for a fuel cell as defined in claim 1, wherein said thermoplastic resin is at least one selected from the group consisting of polytetrafluoroethylene (PTFE), polyethylene (PE), polypropylene (PP), ABS resin, polyamide (PA), polysulfone (PSU), AS resin, polystyrene (PS), vinylidene chloride resin (PVDC), vinylidene fluoride resin, PFA resin, polyphenylene ether (PFE), methyl pentene resin and methacrylic resin.
3. An electrolyte composite for a fuel cell having a solid polymer type electrolyte membrane (1), and a pair of electrodes (3) joined through catalysts (2) to opposite surfaces of the electrolyte membrane (1),
wherein each of said pair of electrodes (3) comprises a porous thermoplastic resin having gas permeability, and a metal (3b) supported in a three-dimensional matrix form on the thermoplastic resin.
4. A method of manufacturing an electrode for a fuel cell comprising plating a metal coating on surfaces of numerous particles (3a) of a thermoplastic resin, and pressurizing and pressure-welding into a plate form the numerous particles (3a) having the metal coating formed thereon.
5. A method of manufacturing an electrode for a fuel cell as defined in claim 4, wherein said particles (3a) are 0.1 μ m to 1,000 μ m in diameter.
6. A method of manufacturing an electrode for a fuel cell as defined in claim 4 or 5, wherein said metal coating is one selected from the group consisting of Ni film, Ni alloy film, Ni compound film, Cu film, Cu alloy film, Cu compound film, Au film, Pt film, Pt alloy film, Pd film, Rh film and Ru film.

7. A method of manufacturing an electrode for a fuel cell as defined in claim 4 or 5, wherein said metal coating is a film selected from the group consisting of Ni-P, Ni-B, Ni-Cu-P, Ni-Co-P and Ni-Cu-B.

8. A method of manufacturing an electrode for a fuel cell as defined in claim 4 or 5, wherein, when forming said metal coating, fine grains other than metal are contained in said metal coating, said fine grains being at least one selected from the group consisting of polytetrafluoroethylene (PTFE), polyethylene (PE), polypropylene (PP), ABS resin, polyamide (PA), polysulfone (PSU), AS resin, polystyrene (PS), vinylidene chloride resin (PVDC), vinylidene fluoride resin, PFA resin, polyphenylene ether (PFE), methyl pentene resin, methacrylic resin, carbon (C), catalyst support grains and thermosetting resin.

9. A method of manufacturing an electrolyte composite for a fuel cell having a solid polymer type electrolyte membrane (1), and a pair of electrodes (3) joined through catalysts (2) to opposite surfaces of the electrolyte membrane (1), said method of manufacturing an electrolyte composite for a fuel cell comprising:

manufacturing said pair of electrodes (3) by plating a metal coating on surfaces of numerous particles (3a) of a thermoplastic resin, and pressurizing and pressure-welding into a plate form the numerous particles (3a) having the metal coating formed thereon; and

joining said electrolyte membrane through said catalyst to one surface of each of the pair of electrodes (3), and joining said electrolyte membranes (1) of the two electrodes (3).

10. A method of manufacturing an electrolyte composite for a fuel cell having a solid polymer type electrolyte membrane (1), and a pair of electrodes (3) joined through catalysts (2) to opposite surfaces of the electrolyte membrane (1), said method of manufacturing an electrolyte composite for a fuel cell comprising:

manufacturing said pair of electrodes (3) by plating a metal coating (3b) on surfaces of numerous particles (3a) of a thermoplastic resin, and pressurizing and pressure-welding into a plate form the numerous particles (3a) having the metal coating formed thereon; and

joining the pair of electrodes (3) through said catalysts (2) to the opposite surfaces of said electrolyte membrane (1).